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ELLEN ROY HERZFELDER
SECRETARY

CERTIFICATE OF THE SECRETARY OF ENVIRONMENTAL AFFAIRS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT

PROJECT NAME	: Cape Wind Project
PROJECT MUNICIPALITY	: Barnstable, Yarmouth, and Federal Waters of Nantucket Sound
PROJECT WATERSHED	: Cape & Islands
EOEA NUMBER	: 12643
PROJECT PROPONENT	: Cape Wind Associates LLC
DATE NOTICED IN MONITOR	: November 23, 2004

Summary of Findings

As Secretary of Environmental Affairs, I hereby determine that the Draft Environmental Impact Report (Draft EIR) submitted on this project adequately and properly complies with the Massachusetts Environmental Policy Act (MEPA), M.G.L. c. 30, ss. 61-62H, and with its implementing regulations, 301 CMR 11.00 (the "MEPA Regulations").

Because MEPA is the product of state law, not federal law, MEPA review and state permitting technically applies only to those portions of the project that are located within Massachusetts, including its territorial waters (generally within 3 miles of the low water mark of the shore). While the majority of the project is located in federal waters, the federal Minerals and Management Service (MMS) recently changed the Submerged Lands Act boundary of Nantucket Sound, thereby expanding Massachusetts territorial waters and state jurisdiction over an estimated 8 - 10 wind turbine generators (WTGs) within the wind farm. The Commonwealth's Ocean Sanctuaries Act (OSA), M.G.L. c. 132A, s. 15, prohibits the "construction or operation of offshore floating or electric generating stations" within the Cape and Islands Ocean Sanctuary (CIOS). I hereby find, as further discussed below, that any WTGs now located within state waters as a result of the recent boundary change must be eliminated from the project. If the project proponent chooses to relocate these WTGs into federal waters, thereby shifting the WTG array, I will require the filing of a Notice of Project Change for public review of the changes to the project and to determine what further analysis may be warranted.

While I have found the Draft EIR adequate to the extent of state jurisdiction, this



determination does not mean that I am satisfied with every aspect of analysis in the Draft EIR¹. I have examined the record before me, including but not limited to the Scope issued; the Draft EIR filed in response; and the numerous comments entered into the record. While many of the comments have raised valid concerns, I find that the Draft EIR has addressed the issues within MEPA jurisdiction, in accordance with Section 11.08(8)(b) of the MEPA Regulations, to a sufficient extent that the project may advance to the stage of a Final EIR. However, there are still outstanding issues within MEPA jurisdiction, as described below and in the comments received. The Final EIR must address these issues, including the need for additional analysis and mitigation measures, and respond to the substantive comments received that are within MEPA jurisdiction.

Project Description

As described in the Draft EIR, the proposed project involves the development of 130 WTGs on a grid over approximately 24 square miles of sub-tidal area in Nantucket Sound known as Horseshoe Shoals. The project will generate up to 454 megawatts (MW) of electricity. Due to the low capacity factor for wind energy projects, the average generation is expected to be approximately 170 MW of electricity. As currently proposed, each WTG will be 263 feet above mean sea level, with a total height up to 423 feet above mean sea level when rotor systems reach maximum height.

The wind-generated electricity from each of the turbines will be transmitted via a 33 kilovolt (kV) submarine transmission cable to the Electric Service Platform (ESP) located within the WTG array. The ESP will take the wind generated energy from each of the WTGs and transform and transmit the electric power to the mainland via two 115kV alternating current (AC) submarine cable circuits. The submarine cable systems will make landfall in the Town of Yarmouth.

The on-shore underground cables and portions of the submarine cables are located within Massachusetts or in the waters of the Commonwealth. The WTG array itself is primarily located in federal waters outside the Territorial Sea.

Federal and State Jurisdiction, Required Permits, and MEPA Jurisdiction

State jurisdiction ends at the limit of Massachusetts waters, 3 nautical miles from the low water shoreline. Because the turbines are in federal waters², they are subject to Army Corps

¹ Section 11.08(8)(b) of the MEPA Regulations requires me to find a Draft EIR adequate even if certain aspects of the project or issues require additional technical or descriptive analysis, provided that "the draft EIR is generally responsive to the requirements of 301 CMR 11.07 and the Scope."

² As noted elsewhere in this Certificate, the recent boundary change promulgated by MMS results in some WTGs within the presently proposed array to be now located in state waters. I have found that the OSA prohibits such structures from being constructed in the CIOS and therefore required these WTGs to be eliminated from the project. For jurisdictional purposes, I am presuming that

permitting and federal NEPA review. In addition, Coastal Zone Management (CZM) as part of its federal consistency review authority must find that any federal permit is consistent with the state's enforceable coastal zone policies, based on the project's potential impact to state resources or uses within the coastal zone.

The project is undergoing review pursuant to Section 11.03 (7)(b)(4) of the MEPA regulations, because the project involves development of a new electric transmission line greater than one mile in length with a capacity of 69 or more kV. The project also requires the preparation and review of a mandatory EIR pursuant to Section 11.03(3)(a)5 of the MEPA Regulations, because the project involves a new non-water dependent use of more than one acre of tidelands. The portion of the project within Massachusetts will require a 401 Water Quality Certificate and a variance from Chapter 91 from the Department of Environmental Protection (DEP); approval from the Massachusetts Energy Facilities Siting Board (EFSB)³; a construction permit from the Massachusetts Highway Department; and an Order of Conditions from the Barnstable and Yarmouth Conservation Commissions (and hence Superseding Order(s) from DEP if one or both local Order(s) were appealed). In addition, the Massachusetts Coastal Zone Management Office (CZM) will conduct Federal Consistency Review of the project, including the portions of the project located in federal waters. The project will require a Section 10 permit from the United States Army Corps of Engineers (ACOE). The ACOE is also the lead agency in the federal environmental review under the National Environmental Policy Act (NEPA).

Because the proponent is not seeking financial assistance from the Commonwealth for the project, MEPA jurisdiction extends to those aspects of the project that are within the subject matter of required or potentially required state permits and that have the potential to cause significant Damage to the Environment⁴. In this case, given the broad scope of the Chapter 91 and EFSB permits, MEPA jurisdiction effectively extends to all aspects of the project that are within Massachusetts. At the time of the Environmental Notification Form (ENF) filing and review, the portion of the project subject to MEPA was not believed to meet or exceed any mandatory EIR thresholds. Because of the precedent setting nature of the project and the potential for significant environmental impacts, the project was scoped for a discretionary EIR in accordance with section 11.06 of the MEPA Regulations⁵.

Because MEPA (like the Cape Cod Commission Act) is the product of state law, not federal law, MEPA review (and by extension Cape Cod Commission review) technically applies only to those portions of the project that are located within Massachusetts, including its territorial

the WTG array remains wholly in federal waters, as WTGs are categorically prohibited in state ocean sanctuaries (see Chapter 132A, section 15).

3 The EFSB is the only state agency allowed to proceed with its approvals prior to completion of MEPA Review. The EFSB issued a tentative decision approving the project on July 2, 2004. A final decision is pending.

4 As defined at 301 C.M.R. 11.02.

5 Since the review of the ENF and issuance of the Scope in 2002, DEP has now determined that the project is a non-water dependent use requiring a Variance under Chapter 91. Therefore, the project now exceeds the mandatory EIR threshold at 301 CMR 11.03(3)(a)5. I sent the proponent a letter on May 28, 2003 revising the Scope for the EIR to include a Chapter 91 variance analysis.

waters (generally within 3 nautical miles of the low water mark of the shore). I note that the proposed WTG array is located outside of Massachusetts and, therefore, is not subject to state regulatory requirements. CZM has broader jurisdiction because federal law (pursuant to the federal Coastal Zone Management Act) specifically delegates review authority over projects in federal waters to the Coastal Zone Management Office of the adjacent coastal state, provided that the state has a federally approved Coastal Zone Management Plan.

Nonetheless, despite the jurisdictional limitations on MEPA review, the proponent agreed at the commencement of the MEPA process to provide information under MEPA (within the meaning of Section 11.05(8) of the MEPA regulations) as it relates to the entire project, including the WTG array in federal waters. This information will also assist CZM in its federal consistency review process. I have therefore set forth requirements below for additional information and analysis that must be included in the Final EIR.

Coordinated Review

In addition to the state MEPA review, the project is undergoing review pursuant to the National Environmental Policy Act (NEPA) and review by the Cape Cod Commission (CCC) as a Development of Regional Impact (DRI). The proponent has committed to filing one set of documents that fulfill the requirements of NEPA, MEPA, and CCC. The Draft Environmental Impact Statement prepared by the Army Corps of Engineers, as the lead agency for NEPA purposes, also served as a Draft EIR for state MEPA purposes. Both NEPA and MEPA regulations allow, and encourage, the preparation of joint EIS/EIR documents. MEPA and CCC have a formal process for coordinated EIR/DRI review pursuant to a Memorandum of Understanding between the agencies. While MEPA, the ACOE, and the CCC are coordinating the review process, each agency retains its independent jurisdiction and decision making authority.

The MEPA Office, which is not required to hold public hearings during review of a project, participated in all four ACOE public hearings on the Draft EIS/Draft EIR, and the CCC public hearing to afford the public maximum opportunity for input. Also, I requested and the project proponent agreed to an extended comment period to align with the close of ACOE's 105-day comment period.

As noted at the outset of this review process, I believe coordinated review is a good government practice, both in terms of allowing for maximum public and agency understanding of the project and to ensure that review by regulatory agencies is as efficient as possible. I hereby authorize and strongly encourage the preparation of a joint Final EIS/Final EIR for the proposed project. If the ACOE prepares a Supplemental Draft EIS, I urge the proponent to delay any state filing to align with the Final EIS review process.

Public Policy and Purpose of MEPA Review

Many commenters have written in opposition and requested that I deny the project because of potential impacts on Nantucket Sound and the lack of a state or federal siting process for offshore wind farms. Many have written in support and urge expedited approval based on benefits such as increased renewable energy, cleaner air, and energy independence. MEPA is not a zoning process, nor is it a permitting process. Rather, it is a process designed to ensure public participation in the state environmental permitting process, to ensure that state permitting agencies have adequate information on which to base their permit decisions and their Section 61 Findings⁶, and to ensure that potential environmental impacts are described fully and avoided, minimized, and mitigated to the maximum feasible extent.

Cape Wind is arguably the most significant precedent setting project currently proposed in the United States. The proposed use of offshore waters has highlighted current gaps in the laws and ability of both the state and federal government to proactively manage our important ocean resources. State and federal ocean waters are held in trust for the public, yet we have historically allowed use of ocean resources on a “first come, first serve” basis. As a result of new technologies becoming available and also the reduced opportunities for land-based development, Massachusetts has seen an increasing number of offshore development proposals. Proposals in recent years off the Massachusetts coastline include natural gas pipelines, offshore LNG delivery and gasification systems, offshore sand mining, wave energy facilities, aquaculture facilities, fiber optic cables, and offshore wind farms.

Rather than the current “first come, first serve” approach, we must proactively protect our important ocean resources. Massachusetts has always been on the forefront of ocean governance. Massachusetts was the first of the original colonies to codify the public trust doctrine, later incorporated into the Public Waterfront Act, M.G.L. c. 91, ss. 1-63 (Chapter 91), in 1865. From 1970 - 1976, the legislature created five Ocean Sanctuaries in the Commonwealth’s Territorial Waters, affording these special areas a higher level of protection and increased standards for review of proposed projects. Most recently, Governor Romney and I commissioned an Ocean Management Task Force to develop recommendations for improved stewardship of ocean resources in light of increased demands on ocean resources and growing user conflicts. The Task Force issued its report in March, 2004 setting forth sixteen recommendations in the areas of governance, management tools, scientific understanding and outreach.

To implement the Task Force recommendation for a comprehensive planning framework for use of state waters, the Governor has developed and will soon file legislation authorizing

⁶ In accordance with M.G.L. c. 30, section 61, any Agency that takes Agency Action on a Project for which the Secretary required an EIR shall determine whether the Project is likely, directly or indirectly, to cause any Damage to the Environment and make a finding describing the Damage to the Environment and confirming that all feasible measures have been taken to avoid or minimize the Damage to the Environment.

resource management planning for state ocean waters. The legislation will authorize ocean resource management planning, with strong municipal and citizen input and participation. It streamlines governance of ocean resources by coordinating state agency responsibilities. This legislation also acknowledges the need, and provides the ability, to improve the Commonwealth's coordination to plan cooperatively with federal agencies for activities occurring in federal waters that may impact resources in state waters.

In September 2004, the U.S. Commission on Ocean Policy made similar recommendations at the federal level, and reported that "a comprehensive offshore management regime is needed that enables us to realize the ocean's potential while safeguarding human and ecosystem health, minimizing conflicts among users, and fulfilling the government's obligation to manage the sea in a way that maximizes long-term benefits for all the nation's citizens."

Despite the aforementioned regulatory gaps and siting concerns associated with offshore wind power, I have stated repeatedly (see EOE A #12532, #12992-96, #13143, and #13176, #13229) that I strongly support the development of renewable energy in the Commonwealth, and I reiterate that strong support here. As I have noted in previous decisions, the Massachusetts coastal zone and mountain regions have the potential to support significant development of wind energy resources. Wind energy represents an indigenous source of virtually emissions-free power. However, as with all other power sources, wind power has potential drawbacks. Potential impact on wildlife is an important consideration, as is the highly visible nature of wind turbines (modern wind turbines are large and the best wind fields are often in the most visible and scenic of places, such as Nantucket Sound). The placement of wind turbines in ecologically sensitive areas can also raise concerns with site-specific construction and operational impacts (for example, to the benthic communities in off-shore locations, or the ecology of surrounding forests in mountainous locations).

I believe that an ambitious program of renewable energy development is in the interests of the citizens of Massachusetts, and that the Commonwealth has an obligation to its citizens to promote development of renewable energy. Wind power is and will continue to be an important component of the renewable energy mix⁷.

At a global and national level, the potential for climate change, global climate disruption, and rapid sea level rise create an urgent need for sustainable alternatives to hydrocarbon combustion. At a regional level, development of an indigenous renewable energy market will help diversify New England's energy mix⁸, improve regional air quality, and create a hedge against price fluctuations in gas and oil prices. At the local level, Cape Wind estimates that it

⁷ Biomass and landfill gas comprised 36% and 56% respectively of new renewable generation in the New England region in 2003, while new wind generation represented less than 1% (see DOER Annual RPS Compliance Report for 2003). While wind generation is expected to grow significantly in the region in the coming years, biomass and landfill gas will continue to represent significant portions of the renewable energy mix.

⁸ Natural gas contributed to 4% of electrical production in New England in 1993. By 2000, that figure had increased to 20%, and by 2005 the Massachusetts Division of Energy Resources projects that New England will rely on natural gas for 37% of its electrical generation.

will meet 75% of the Cape and Islands energy demand and, according to the EFSB tentative decision, will reduce in the near term regional air emissions by approximately 4480 tons of SO₂, 1323 tons of NO_x, and 1,062,554 tons of CO₂, and would reduce Massachusetts near term air emissions by approximately 1792 tons of SO₂, 529 tons of NO_x, and 425,022 tons of CO₂ annually.

At a state level, development of renewable energy will help Massachusetts ensure compliance with the Commonwealth's legally mandated Renewable Energy Portfolio Standards (RPS), M.G.L. c. 25A, s. 11F and 225 CMR 14.00, and commitments for reduction of greenhouse gases made in the Governor's 2004 Climate Protection Plan. The Commonwealth has adopted air quality goals to reduce emissions of greenhouse gases to 1990 levels by 2010; to reduce greenhouse gas emissions to 10% below 1990 levels by 2020; and ultimately to reduce greenhouse gas emissions by 75%-85% to achieve sustainability and climate stability.

I remain committed to ensuring that Massachusetts remains a leader on ocean governance and implements its stated and binding policy commitments to renewable energy. At the same time, I must ensure that all renewable energy projects subject to MEPA are held to an appropriately high standard and that proponents of wind power development take all feasible measures to avoid, minimize, and mitigate impacts from their projects. I will further ensure that both the impacts and benefits of wind power receive appropriate and thorough study in Massachusetts.

Final EIR Issues

General

The Final EIR should contain a copy of this Certificate and a copy of each comment received. The proponent should circulate the Final EIR at a minimum to those parties submitting written comments on the Draft EIR, and to any state agency from which the proponent will seek permits or approvals.

The Final EIR may incorporate by reference those portions of the Draft EIR that do not require further analysis. The Final EIR should address the issues outlined below and the substantive issues raised in the comments received.

Permitting and Planning Consistency

The Final EIR should include a brief discussion of each state permit or agency action required for the project. The Final EIR should demonstrate that the project could meet any applicable performance standards of each permit.

Alternatives

WTG Array

The alternatives analysis in Section 3 of the Draft EIR presents a number of alternatives for comparative purposes as required in the Scope. This section does respond in a general way to the scope of the Draft EIR under MEPA and compares the impacts of coal, oil, and natural gas generating plants capable of producing 454 MW of electricity at capacity. The Final EIR should aim to establish a clearer baseline for consideration of the alternatives. The Draft EIR also provides a comparison of alternate renewable energy technologies. This section provides an overview of the various forms of renewable energy generating technologies and discusses their relative impacts. However, the Final EIR should contain a concise, quantitative summary of each of the technologies studied to allow a simple comparison to be made.

The Draft EIR provides an analysis of four alternative sites, including the proponent's preferred alternative of Horseshoe Shoals. The four alternate sites include Nantucket Sound (Horseshoe Shoals), South of Tuckernuck, Massachusetts Military Reservation and a combination site consisting of offshore facilities near New Bedford and a reduced facility at Horseshoe Shoals. ACOE initially developed a list of 17 potential sites and used a set of screening criteria to narrow down the alternatives to undergo more detailed study. Issues raised for each site were listed to provide the relative merits and/or detriments of these sites.

Although a number of alternatives are presented in the Draft EIR there are issues that must be addressed in the Final EIR. For example, the Draft EIR does not support the statement that "under the No-Action Alternative, or if the permit is denied, it is likely that commercial development of offshore wind power in the United States, at a comparable size and scale of that proposed by the Applicant, will not advance significantly." The Final EIR should include the No Action alternative and a discussion of the status of other renewable energy projects (solar, small hydro, biomass, land based wind, etc.) and how they would impact the regional situation for RPS compliance. I encourage the proponent to consult with the Department of Energy Resources, which collected data and performed analysis on this topic, that should be incorporated into the Final EIR.

The Draft EIR describes (page 3-29) "generally accepted planning guidelines" for the wind power industry. Those guidelines state that while approximately 20 acres of land are required to generate 1 MW of power, a smaller area is needed for an offshore facility because of the relative smoothness of an open water surface and the absence of topographical features. Specifically, the guidelines cite a 1.2:1 ratio for land and offshore project sites. Therefore, according to these guidelines, an offshore site would require approximately 16.7 acres to generate 1 MW of power; for a project generating 454 MW, the required area of open water should be approximately 7,582 acres, or slightly less than 12 square miles.

Based on this analysis, it appears that the footprint of the array may be considerably larger than necessary. This conclusion is supported by comparing the spacing between turbines at the Horns Rev facility off the coast of Denmark with that proposed for the Cape Wind project. The Draft EIR did not evaluate alternatives that sought to lessen impacts by using a smaller array

footprint. Indeed, all of the offshore sites considered in the Draft EIR (Table 3-5) that have a capacity greater than 200 MW are based on an available watersheet of 24 square miles, including those that have higher wind speeds, and presumably could generate the same amount of power with fewer turbines. The applicant may have proposed a larger-than-necessary spacing between turbines in an attempt to reduce impacts, especially to navigation. However, based on data presented in the Draft EIR, I do not find a basis for concluding that greater spacing between WTGs reduces environmental impacts, and may instead spread these impacts over a greater area of Nantucket Sound.

As stated above, the Draft EIR does not include any alternate configurations for the turbine array at Cape Wind's preferred alternative. The proponent must address alternative configurations at this site in the Final EIR. A fundamental exercise in evaluating alternatives is to vary the configuration of the project to understand the relative benefits/detriments to the public interest of each configuration, irrespective of the desires of the proponent. This may be of particular importance for a project such as Cape Wind's where the visual impact is of concern to many members of the public and where changes in spacing, layout and/or distance from shore may alter the visual impression of the project. The proponent must evaluate in the Final EIR configurations in the following ways to explore the relative impacts of different configurations:

1. *Reduced number of turbines or phased-in construction.* To be a useful exercise in informing the public and permitting agencies in the relative impacts of the project, the analysis should include a project with a significantly reduced facility and/or a phased-in approach to installation. A smaller project would likely have proportionally smaller detriments and benefits but would allow decision makers to determine whether the economies of scale enjoyed when building a large facility weigh favorably with the relative impacts. If it is uneconomic to construct a smaller facility or employ phased-in construction, the Final EIR should clearly articulate why, so that the public may fully understand why the project is the size proposed.
2. *Alternate Configurations.* The current arrangement of turbines places the facility 4.7 miles from Point Gammon and 6 and 6.5 miles from Cotuit and Craigville Beach respectively. The facility is approximately 9 miles from Martha's Vineyard and approximately 14 miles from Nantucket. If the proposed facility is to remain at its current size, it is imperative that the alternatives analysis explores functional alternatives in project configuration and assesses their impacts. The Final EIR should evaluate the following: a) a configuration that maintains the size of the facility but places the turbines further away from shore; b) whether alternate turbine spacing would be more preferable than that currently proposed for the project; and c) what potential might exist for a maintaining the number of turbines, but instead utilizing a mix of turbine sizes.

The Final EIR should consider comments received relative to navigation safety when updating alternative configurations for the turbines. The proponent should consult with the U.S. Coast Guard and the Steamship Authority to strive to provide a suitable distance for placement of

the turbines from established navigation channels and ferry routes. The Final EIR should also demonstrate that protection is afforded to prevent large ship and tanker collisions with the turbines proposed adjacent to the Nantucket Sound Main Channel.

In addition to alternative configurations at the preferred location, the Final EIR should reevaluate the South of Tuckernuck Island alternative at a greater level of detail with respect to engineering design and environmental resources, so that a more instructive comparison of shallow water and deeper water sites can be undertaken. A significant portion of the South of Tuckernuck Island site appears to lie in waters less than 75 feet, which is within the range of the North Sea and Long Island Sound projects; and the site is described as sheltered to some extent from open ocean waves due to the position of Nantucket to the east. The Final EIR should also contain clarification of the wind classification of the Nantucket Sound and South of Tuckernuck alternatives. In Table 3-5, the Nantucket Sound sites are given wind classification values of 5 and the South of Tuckernuck Alternative a value of 6; however, in section 3.4.3.3.2, which compares the economics of the alternatives, both sites are stated to have wind classification values of 6.

Cable

The Draft EIR presented four approaches for the interconnection of the wind farm. These four approaches include connecting the wind farm: (1) to NSTAR's 115 kV Barnstable Switching Station; (2) to NSTAR's 115 kV Harwich Substation; (3) to NSTAR's 115 kV Pine Street Substation in New Bedford; and (4) to a new 115 kV substation on Martha's Vineyard, then proceeding on to the mainland. The Draft EIR also identified four criteria for selecting an approach to interconnecting the wind farm to the grid: (1) proximity of the electric power system to the wind farm; (2) ability of the electric power system to accept the wind farm's full output; (3) suitability of voltage levels for delivery of the output; and (4) availability of multiple transmission lines at the tie-in point.

The EFSB Tentative Decision finds that while each of the project approaches could provide a reliable interconnection with the regional transmission grid, the best interconnection point would be the Barnstable Switching Station, which is the major bulk substation on Cape Cod, and is connected to the grid by six separate transmission lines. Therefore, the preferred approach presented in the Draft EIR is the Barnstable Interconnect. The preferred approach would interconnect the wind farm with the grid at NSTAR's 115 kV Barnstable Switching Station via an approximately 18- to 24-mile transmission line, 9 to 12 miles of which would be submarine cable⁹.

The Barnstable Switching Station is located south of Route 6 off Mary Dunn Road in

⁹ As presented in the Draft EIR, 6.6 miles of cable are in state waters. The total length of the cable and impacts in state waters is now increased as a result of MMS' boundary change. The Final EIR should provide updated calculations as a result of this change.

Barnstable. Six 115 kV lines emanate from the Barnstable Switching Station, including three that run to the west, two that run to the east, and one that runs to the south. The distance from landfall to the Barnstable Switching Station ranges from approximately 5.9 miles (for the New Hampshire Avenue landfall in Yarmouth), to approximately 14.2 miles (for the Mashpee Town Landing landfall). If the alternative route were used, a new riser station would need to be constructed in the NSTAR ROW in Mashpee, to connect the proposed transmission lines to the existing NSTAR 115 kV line and to the new overhead transmission lines.

As described in the Draft EIR, the environmental impacts associated with the Barnstable Interconnect would consist predominantly of temporary impacts associated with the construction of the marine and underground facilities. The Final EIR should contain mitigation for these temporary impacts, which could be achieved through the design of the facilities and through optimization of the route. The Draft EIR concluded that the Barnstable Interconnect would have fewer temporary impacts since it is the shortest project alternative.

Chapter 91/Public Trust/Ocean Sanctuaries

As mention above, at least six and one-half miles of the cable will travel through submerged tidelands of the Massachusetts Territorial Sea and, therefore, is subject to the jurisdiction of Chapter 91 and its implementing regulations at 310 CMR 9.00. Pursuant to 310 C.M.R. 9.32(1)(a), new non-water dependent structures are not permissible over flowed tidelands, and therefore would require a variance from Chapter 91 and 310 C.M.R. 9.00. DEP has thus determined that the portion of the submarine cable located in state waters is a non water-dependent use of tidelands, and will therefore require a variance from Chapter 91 and 310 C.M.R. 9.00.

In June 2003, DEP clarified the licensing status of the cable, and defined it as a non-water dependent infrastructure facility (NWDIF) subject to the performance criteria at 310 CMR 9.55 and requiring a variance issued by the Commissioner in accordance with the provisions at 310 CMR 9.21. The project proponent recently submitted to DEP a Chapter 91 application for a water-dependent project license, which would not require a variance, asserting that the cables should be characterized as either an infrastructure crossing facility, pursuant to 310 CMR 9.12(2)(d) or an infrastructure facility that is dependent on marine transportation, pursuant to 310 CMR 9.12(2)(c). DEP will continue to categorize the project as a NWDIF requiring a variance. A formal determination on the pending license application will not be made until a final Certificate of adequacy is issued under MEPA. The Chapter 91 regulations require that if a variance is reasonably foreseeable the information required to be submitted to be considered eligible for a variance should be included in the EIR (310 CMR 9.21(2)(c)).

In this case, a request for a variance must be submitted and approved to obtain a non-water dependent license for the project (310 CMR 9.21(2)). The Final EIR should include the following information to aid in this determination:

1. the specific regulatory provisions from which the proponent will seek variances;
2. alternative designs, locations, or construction methods that would allow the project to proceed without a variance (the EIR should also explain why these alternatives are unreasonable);
3. the detriments to public interests in waterways due to the project, and proposed means by which the proponent will minimize these impacts;
4. proposed measures to compensate for any remaining detriments to public interests in waterways; and
5. the overriding public interest served by the project, with provision of adequate supporting documentation.

The Draft EIR did not specifically identify which section of the regulations the proponent seeks a variance from, and the Final EIR should clarify this issue. The Final EIR should also address the standards for NWDIF at 310 C.M.R. 9.55, including analysis of impacts to maritime commerce, industry, recreation, and associated public access; living marine resources and water quality; and public views, visual quality of the shoreline environment, and historic and cultural resources near waterways.

The Commissioner of DEP may exercise the discretionary authority to grant a variance request, following a public hearing pursuant to 310 CMR 9.21(1), if he makes the following findings:

- (a) there are no reasonable conditions or alternatives that would allow the project to proceed in compliance with 310 CMR 9.00;
- (b) the project includes mitigation measures to minimize interference with the public interests in waterways and that the project incorporates measures designed to compensate the public for any remaining detriment to such interests; and
- (c) the variance is necessary to accommodate an overriding municipal, regional, state or federal interest.

The Commissioner's authority to issue a variance is discretionary and provides the ability to consider the full range of potential benefits and detriments of a proposed project. Given the precedent setting nature of this project, I believe that both the benefits and detriments need to be viewed in this context. DEP has indicated that they will continue to utilize the MEPA process and comments of other state agencies with jurisdiction over coastal and marine resources, including CZM, DCR, DFW, and DMF. These agencies, in addition to federal agency commenters and members of the public, have provided extensive comments requesting additional information in a number of areas including water quality, wildlife, fisheries, visual and historic impacts. The Final EIR should address these concerns, as further articulated below, to inform the Chapter 91 process.

The proponent should also propose mitigation for potential detriments to waterway interests. Historically, project proponents have provided compensation in the form of fees and other amenities that benefited the general public's and the affected communities' interests and

which had a nexus to waterway resources including, for example, sea floor mapping, public open space improvements, and improving public access to the shoreline and water sheet at other locations. The proponent should consult with state agencies and affected communities on appropriate compensatory measures and present proposals in the Final EIR.

Ocean Sanctuaries Act

Under the Ocean Sanctuaries Act, OSA, M.G.L. c. 132A, ss. 13-16 and 18 (OSA), and its implementing regulations at 302 CMR 5.00, the five ocean sanctuaries, including the CIOS, “shall be protected from any exploitation, development, or activity that would seriously alter or otherwise endanger the ecology or the appearance of the ocean, the seabed, or subsoil thereof, or the Cape Cod National Seashore.”

The proposed WTG array, as originally proposed, would be located outside of the jurisdiction of the CIOS, and in fact outside of the territorial waters of the Commonwealth of Massachusetts. The federal MMS recently modified the boundary of the Commonwealth based upon the identification of so-called “asterisk rocks.” As a result, a portion of the proponent’s preferred alternative, approximately 8-10 WTG’s, now falls within the boundary and jurisdiction of the Commonwealth and, in turn, within the CIOS and subject to the requirements of the OSA.

As stated earlier, Section 14 establishes a set of guiding principles. In addition, Section 15 of OSA prohibits within the CIOS the “building of any structure on the seabed or under the subsoil” as well as “the construction or operation of offshore or floating electric generating stations.” Section 16 of OSA, however, modifies the above-mentioned prohibition to allow for certain limited activities. The first of the permitted activities allows for the following:

the planning, construction, reconstruction, operation and maintenance of industrial liquid coolant discharge and intake systems and all other activities, uses and facilities associated with the generation, transmission, and distribution of electrical power, provided that all certificates, licenses, permits and approvals required by law are obtained therefore,

With respect to serving the public’s energy needs, the DCR views this exemption to allow (if the impacts are properly mitigated and permitted) a range of activities, otherwise prohibited by Section 15 of OSA, such as electric transmission cables and natural gas pipelines, that support electric generating facilities located outside of an ocean sanctuary. However, DCR does not believe that this exemption stretches so far as to allow the construction of an actual offshore electric generating facility within an ocean sanctuary. Such a reading of the exemption would, in effect, swallow and render meaningless the entire prohibition in Section 15 of the Act concerning the construction and operation of offshore electric generating stations within the CIOS. The exemption in Section 16 should be read together with the Section 15 prohibition of offshore generating facilities within the CIOS to allow “all *other* activities, uses and facilities *associated*

with the generation, transmission, and distribution of electrical power” or, in other words, to allow all other such electrical power related activities except the construction and operation of the generating facility itself within the CIOS. DCR does not believe that this, or any other exemption in Section 16, should be read to implicitly allow and overcome the otherwise express prohibition on offshore electric generating facilities and structures attached to the seabed within the CIOS. As such, DCR has determined, and I concur, that the OSA prohibits the construction of any electric generating facilities, including WTGs, that would fall within the CIOS.

I hereby find that any WTGs now located within state waters as a result of the recent boundary change must be eliminated from the project. If the project proponent chooses to relocate these WTGs into federal waters, thereby shifting the WTG array, I will require the filing of a Notice of Project Change for public review of the changes to the project and to determine what further analysis may be warranted.

With respect to the cable located in state waters, DCR views this activity as potentially eligible for the exemptions in Section 16, such as the above-described exemption concerning electric power related activities, as well as exemptions regarding (1) the laying of cables approved by the department of telecommunications and energy, and (2) projects that are authorized under Chapter 91, deemed to be of public necessity and convenience, and can obtain other approvals as needed. In determining whether the cable is of public necessity and convenience, DCR and other state agencies will consider:

1. the financial and/or technical ability of the person proposing the project to build and maintain the project properly;
2. whether the facility or use, if any, existing at the time the agency approval is requested is inadequate;
3. whether either the public, which may be represented by several individuals or a representative group, demonstrates a need for the facility or use or that appropriate state or local public officials deem the facility or use necessary for the public's safety or welfare;
4. whether the proposed facility or use will serve the public interest;
5. whether the proposed facility or use will seriously alter or otherwise endanger the ecology or appearance of the ocean, the seabed or subsoil thereof, or the Cape Cod National Seashore; and
6. the extent to which existing uses or facilities will be affected by the proposed facility or use.

The FEIR should provide a detailed discussion as to how the project meets the applicable provisions of the OSA. DCR will continue to participate in the MEPA and Chapter 91 licensing processes to ensure that the applicable provisions of the OSA are addressed.

Federal Consistency

As noted above, CZM is authorized through the federal Coastal Zone Management Act to review federal actions¹⁰ that are within or can reasonably be expected to affect the resources or land or water uses of the Massachusetts coastal zone. CZM reviews projects for consistency with its federally-approved enforceable policies and provides a consistency finding to federal agencies prior to a federal action, in this case the ACOE's Section 10 Permit under the Rivers and Harbors Act. CZM's jurisdiction extends over all aspects of the project that may reasonably affect the resources or uses of the Massachusetts Coastal Zone to the extent the activity implicates federally-approved enforceable coastal policies. CZM provided extensive comments on the Draft EIS/Draft EIR. The Final EIR should address the specific comments of CZM, and provide sufficient information to facilitate the federal Consistency Review. The Final EIR should update the analysis in the Draft EIS/Draft EIR in light of CZM's comments and address the applicable specific policies of the Massachusetts Coastal Zone Management Plan, including: Energy Policy #1; Energy Principle #1; Habitat Policy #1; Coastal Hazard Policies #1 and #2; Ports Policy #3; Public Access Policy #1; Ocean Resources Policies #1, #2, and #3; and Growth Management Principle #1. Additionally, the Final EIR should address the topics below to assist CZM in its federal consistency review.

Environmental Impacts/Air Quality

The Draft EIR demonstrates that the proposed project would result in public health benefits and air quality improvements by reducing emissions from other fossil fuel based energy sources. However, I strongly suggest that the proponent revise its air quality analysis to better characterize these benefits in a more precise manner. The Final EIR should be prospective in nature and based on a dispatch model that integrates realistic assumptions about conventional and renewable energy growth, electricity imports/exports, and fuel prices to project emission benefits in the years that the project would be in operation. An example of a study using this methodology was conducted by LaCapra Associates for the Massachusetts Technology Collaborative in February 2003 and is entitled, "Electric Sector Emissions Displaced due to Renewable Energy Projects in New England." The air quality analysis should also include potential local impacts on the Cape and Islands.

Avian Impacts

The Draft EIR states that there will be no long-term population impacts from a low level of avian mortality; however, it will add to the cumulative impacts from all of the other sources of avian mortality. Several species of seabird are in strong decline, so even minimal mortality could have serious consequences for the population.

The Draft EIR contains a wealth of information relative to avian issues. However, EPA, US Fish & Wildlife Service (USFW), Massachusetts Division of Fisheries and Wildlife (DFW),

¹⁰ For purposes of federal consistency review, federal actions include any federal license or permit, federal funds, or direct activities of a federal agency.

Mass Audubon and other advocacy organizations have raised concerns about potential avian risk from the project and deficiencies in the Draft EIR. I share these concerns. I will continue to consult with the ACOE, state and federal resource agencies, and the proponent concerning the appropriate level of additional study and analysis. I strongly encourage further consultation with EPA, USFW, DFW, and Mass Audubon in refining the methodology for sampling and analysis to assess the potential impacts from the WTGs. At a minimum, the Final EIR should include the information outlined below.

The Final EIR should provide sufficiently detailed information on bird use of the Sound. The Final EIR should include the Mass Audubon fieldwork that has been conducted to date and additional fieldwork scheduled to provide three years of survey work. Analysis of this data should be included in the Final EIR.

The Draft EIR does acknowledge the large evening roost of Long-tailed Ducks in Nantucket Sound and an inability to quantify and locate the roost precisely due to the crepuscular nature of the species' activities. However, the Draft EIR does not adequately characterize the presence or behavior of the Long-tailed Ducks in Nantucket Sound. Further data on access, egress and evening roosting areas in and around Nantucket Sound should be included in the Final EIR to characterize the presence of Long-tailed Ducks in Nantucket Sound.

The Final EIR must reanalyze the Roseate Terns radar data presented in the Draft EIR. Additional surveys are needed during periods when the Roseate Terns are arriving at and departing from Nantucket Sound and the proposed project site area. This information will help determine flight heights and directions.

The Final EIR should include at least one year of additional radar data to examine migratory passerines during spring and fall migrations. Information is needed on annual variation in numbers and timing, and the heights at which they pass over the project site during a variety of weather conditions.

The Final EIR should reanalyze the radar data on bats to provide information on the use of the Sound as a flyway by migratory bats. The Final EIR should include an objective analysis and discussion of bird mortality at wind farms.

Further assessment of collision risk for birds passing through the project area should be conducted, utilizing all available data. Given the uncertainty surrounding this analysis, risk should be presented as a range of probabilities. The Draft EIR's data collection techniques for avian impacts have resulted in discrepancies. For example, the Final EIR should address the discrepancy between the number of targets observed by radar in the rotor swept zone (127,697) and the number of birds counted (365) in the rotor swept zone during 46 aerial surveys from 2002 to 2004. The Final EIR should contain additional data to adequately characterize baseline conditions and to predict potential impacts from the proposed project.

The Final EIR should propose in detail a post-construction monitoring plan to continue assessment of avian movements and track collisions with structures. The Final EIR must also include mitigation designed to significantly enhance breeding activities to offset mortality. For example, an element of the mitigation might include the establishment of an ongoing fund to support the acquisition and permanent protection of breeding bird habitat. The Final EIR should provide a detailed discussion on mitigation for avian impacts.

Rare Species

In addition to potentially affecting rare birds, the project may have impacts on the habitat of the Grey Seal, a state Species of Special Concern, and other potential impacts on marine mammals. These include several species of state-endangered and federally-endangered whales known to transit Nantucket Sound, and sea turtles. The Draft EIR provides little site-specific data on the use of Nantucket Shoals by threatened and endangered marine mammals and sea turtles (including the Loggerhead, Kemp's Ridley and Leatherback).

The aggregation of fish and the proliferation of blue mussels and crabs around each structure may serve as an enticement, specifically to sea turtles. Consequently, trawlers, as well as recreational fishermen and charter boats, may be more inclined to trawl near these structures. This focused fishing effort and boat traffic may increase the risk of boat collisions and/or impacts from fishing gear to sea turtles and marine mammals. The Final EIR should incorporate the biological assessments required under the Endangered Species Act and address the potential impacts more thoroughly. If impacts to rare species or their habitat are unavoidable, as determined in consultation with NHESP, mitigation should be proposed.

To minimize damage to rare species from noise, the proponent has committed to post an observer during the initial phases of construction, suspend construction activities if protected marine mammals are found within 500 meters of the site, and use a soft start-up during monopile installation. The proponent should consider establishing a safety zone during the installation of the monopiles. This safety zone would ensure marine mammals do not approach the area where 180 decibels or greater noise is expected. Every effort should be made to limit construction during periods of peak protected marine mammal migration.

Fisheries Impacts

The Massachusetts Division of Marine Fisheries (DMF) provided data to the proponent that characterized general characteristics of finfish and decapod crustacean resources throughout the sound. While this data is valuable for understanding large-scale, Sound-wide trends in resources, the DMF resource survey does not adequately survey site-specific or annual characteristics of finfish and decapod crustacean ecology. The Draft EIR did not present site-specific data to supplement the DMF data to better describe ecological characteristics of the

project area. It is difficult to assess the baseline conditions needed to understand potential changes associated with the project without site specific data.

Specifically, the assessment of commercial and recreational shellfisheries is based on broadscale landings data and does not provide sufficient detail to assess impacts associated with the construction of the project. The Draft EIR relies on DMF research trawl data, which is intended to gather information on finfish and is not an appropriate method to assess shellfish abundance or to evaluate shellfish resources in the area. A targeted resource survey should be conducted to assess the distribution and abundance of commercial and recreational shellfish species, in addition to non-target shellfish species. In order to provide the means to identify potential impacts and measures to avoid impacts to shellfish, the proponent should work with DMF to design the survey. The proponent should also reexamine the resource characterizations developed from state and federal finfish data in consultation with fisheries agencies to accurately represent conclusions. Using accurate data, the proponent should also reevaluate the resource and use characterizations, assessment impacts and site comparisons of the project area and at least one alternative site.

The Draft EIR does not contain a benthic habitat map that characterizes the project site in sufficient detail. A survey of the benthic habitat in the project area will provide more insight into the extent of the impacts to the important habitats in the project area such as eelgrass beds, seaweed, sand waves, and rocky outcroppings. The proponent should develop this information to help assess the design and route of project elements in order to avoid important habitat areas. This information can be used in conjunction with a sediment transport model to assess indirect impacts to the project on the benthic habitat. The absence of detailed habitat information makes it difficult to evaluate impacts to distinct habitat types. The Final EIR should contain a more detailed benthic habitat mapping analysis that identifies eelgrass beds, shellfish habitat, sand waves, and other habitat types in the project area, including the path of the transmission cables and the location of monopiles and associated structures. The proponent should consult with DMF and CZM in developing this information.

The monopiles and scour protection will add a substantial area of new artificial habitat to Nantucket Sound. The addition of hardened structures to the seafloor and through the water column and the associated changes to the distribution and abundance of marine organisms is an example of the "reef effect." The addition of this new habitat type may introduce species that are adapted to such environments in Horseshoe Shoals, where no such habitat currently exists. Another result may be that the species that under natural conditions are broadly distributed across Horseshoe Shoals will instead aggregate around these monopile structures. An additional factor is the large footprint of the WTG array and the cumulative effects of such a large number of pilings over an extensive area of Nantucket Sound. The Final EIR must address whether the effect is diminished because of the spacing between the WTGs or whether this will serve to increase the area of biological change.

While the Draft EIR acknowledges that the monopiles will create a vertical hard surface habitat that does not currently exist, the potentially significant changes in the distribution and abundance of marine species in Nantucket Sound are not described. It may not be possible to comprehensively document this effect by any other means than post-construction monitoring; however, the Final EIR should contain a more substantial review and discussion based on the current literature of the possible changes resulting from habitat change. This information should be included in the Final EIR to assess possible impacts and determine whether habitat changes can be avoided or mitigated.

The Draft EIR discounts any significant obstruction to fishing activity; however, the monopiles and scour mats may preclude certain types of fishing, such as weirs and mobile gear. In addition, if an exclusion zone around each WTG is determined to be necessary or is functionally imposed by the incompatibility of the structure and certain gear types, then fishermen's access to these fishing grounds will be diminished. The Final EIR at a minimum must provide additional discussion related to possible limited fishing activities and discuss how to address these exclusion zones.

Aquatic Vegetation

The Draft EIR states that the route of the transmission line was chosen to avoid impacts to submerged aquatic vegetation, primarily eelgrass. The Draft EIR contained data from the Mass GIS website on statewide eelgrass distribution and supplemented that with the proponent's consultant's survey in July 2003. Information from this survey is not presented in the Draft EIR. The Final EIR should contain, at a minimum, the results of this survey, a map detailing the transmission line route with the vegetation mapped by the consultant and discussion of the methods used.

The Draft EIR states that the closest the transmission line comes to existing eelgrass is 70 feet. The EPA has commented that 70 feet is not a sufficient buffer distance to assume that no impact will occur. To minimize impacts from construction vessels to eelgrass, the EPA has advised that the proponent should mark off the edge of the eelgrass meadow with buoys and implement a "no wake" zone for construction vessels for 200 feet from the edge of the meadow. The proponent should consult with state and federal resource agencies to construct a scope of these eelgrass surveys before they are conducted. It is important for the applicant to demonstrate that impacts to eelgrass have been avoided and minimized before a compensatory mitigation plan for unavoidable impacts is developed. I encourage the proponent to develop a Before Action Control Impact (BACI) design, which has been implemented for other recent projects (Hubline and Nantucket electrical cable line) and include this information in the Final EIR.

Visual

The Massachusetts Historical Commission (MHC) had identified numerous historic

resources within the project viewshed. The resources are sufficiently well spaced and geographically representative of the project area as a whole such that analyzing the visual impacts on historic resources captures a good sense of the overall visual impacts of the project.

The preferred site for the wind farm is centrally located within this overall viewshed, which is a popular recreational resource used for a variety of water-related activities. On shore, the Draft EIR (Table 3-26) identifies a total of 259 specific public recreation sites along the Nantucket Sound shoreline, located at distances ranging from a low of 4.8 miles (Point Gammon, Yarmouth) to a high of 17.6 miles (at Morris Island, Chatham) from the closest edge of the preferred wind farm site. Among other things, these sites include numerous properties within National Register-listed or eligible historic districts or that contain individual structures that are listed or eligible for listing. The WTG structures are expected to be visible to varying degrees at all of these public recreation sites, as well as from most of the extensive privately-owned shoreline abutting Nantucket Sound – all of which lies within a 27-mile radius of Horseshoe Shoals, the theoretical maximum range of visibility for a 420 foot structure located at sea, as seen from a point 10 feet above sea level (based on standard visibility charts, as estimated by the applicant and reported in the EFSB, page 185).

NOAA data over a 22-year period indicates that visibility can be expected to be less than .25 miles at some point during the day on a total of 98 days each year, and less than 2 nautical miles an average 8.5% of the year. The collection of photo renderings provides a useful starting point for an assessment of visual impact. It demonstrates that virtually all of the turbine towers will be visible from shoreline vantage points up to 14 miles distant from the facing perimeter of the project site, with “the greatest Project visibility and visual contrast expected to occur at distances of less than 8 miles, within which all the WTGs will be visible within the field of view....[and] the grid pattern of the turbine layout will be also be visible...”(p.3-202).

MHC has determined that the preferred alternative for the proposed project will have an adverse effect on the following historic properties: the Nobska Point Light Station (Falmouth); the Cotuit Historic District, the Col. Charles Codman Estate, the Wianno Historic District, the Wianno Club, the Hyannis Port Historic district, and the Kennedy Compound (all in Barnstable); the Monomy Point Light House (Chatham); the West Chop Light Station (Tisbury); the East Chop Light Station and the Dr. Harrison A. Tucker Cottage (both in Oak Bluffs); the Edgartown Village Historic District, the Edgartown Harbor Lighthouse, and the Cape Poge Light (Edgartown); and the Nantucket Great Point Light and the Nantucket National Historic Landmark District (Nantucket). The adverse effect includes the introduction of visual elements that are out of character with the historic properties and the alteration of the setting of the historic properties (36 CFR 800.5(a)(2)(iv and v)). The proponent should work with MHC and develop suitable mitigation measures to offset these findings and present this information in the Final EIR.

With respect to judging the *significance* of the visual impacts identified in the respective simulations, the Draft EIR appears to rely primarily on the results of a limited Visual Impact

Assessment (VIA) required by the federal National Historic Preservation Act, in which a professional architectural historian also concluded that the project would have an adverse effect on two historic properties, four historic districts, and ten individual historic properties (page 5-204). There is no apparent attempt to employ a broader framework for evaluation, with the only additional discussion consisting of a brief statement on page 5-203 to the effect that the observation of greatest impact at 8 miles or less is “consistent with European studies that indicate a distance of 9.3 miles may be the maximum limit of visual significance along the coast and within a seascape.” This seems to imply that a simple distance cutoff can be employed in determining the extent to which the appearance of the ocean will be altered significantly as a result of the proposed wind farm.

Although the proposed project is certainly most prominent in the photo simulations prepared for viewpoints within this range (nos. 5,6,7,8, and 19), it cannot be concluded that both visibility and visual contrast diminish substantially at points beyond, because all but one of the renderings prepared for these “far-field” viewpoints are either lacking strong back or front lighting from the sun, are partially screened by intervening landforms, or otherwise manifest less than ideal viewing conditions (such as overcast, haze, or “sky washout”). This is not in keeping with the worst-case approach on which the simulation program as a whole was based, and suggests that additional renderings are needed for the viewpoints in question (nos. 20, 22-24, 26, and 1), to better illustrate the “far-field” appearance of the wind farm under conditions of greatest visibility and visual contrast. The Final EIR should contain new simulations prepared according to the same specifications for at least two additional viewpoints, to represent sections of the Cape Cod shoreline lying between 14 and 18 miles from the outer perimeter of the project site (and therefore not encompassed by the 12 simulations presented in the Draft EIR). Table 3-26 indicates that several public recreation sites in Harwich and Chatham are in the Horseshoe Shoals viewshed and within this distance range, and I encourage the proponent to choose the two sites with the most open, unobstructed views of the wind farm be selected for preparation of new photo renderings. The Final EIR should also contain the computation of values for two basic parameters:

1. the amount of ocean-facing shoreline (in miles, and as a percent of the total within Nantucket Sound) located within three categories of distance from the wind farm perimeter: 0-6 miles (a near-field distance), 6-12 miles (a mid-field distance), and 12-18 miles (a far-field distance, to the farthest reaches of the Sound but still well within the maximum theoretical limit of visibility of the turbine towers); and
2. the arc (in degrees, and as a percent of the full seascape view) that describes the horizontal extent to which wind farm structures will be noticeable against the water horizon, for all of the separate viewpoints and grouped again according to the three distance categories stated above.

Historic/Archaeological Impacts

As noted above under visual impacts, the EIR should assess visual impacts on the various historic districts and properties identified by MHC in the project viewshed. In addition, the EIR should evaluate any impacts on historic resources along the overland cable route.

Areas in the eastern portion of the preferred alternative that exhibit moderate to high sensitivity for containing prehistoric archaeological deposits, in the form of ancient intact landscapes, or paleosols, could contain archaeological materials from Native American settlements. Further archaeological survey should be conducted using vibratory coring and intensive subsurface testing to determine the presence of Native American deposits.

Noise

The Draft EIR concludes that the wind field will comply with the state's noise regulations, but that temporary impacts may result from project construction, particularly pile driving. Section 6.0 of the Draft EIR indicates that acoustical measurements would be taken during project construction (Section 6.2.1) and post-construction (Section 6.3.2), to verify compliance with any conditions imposed as a result of the review. However, other than the Preferred Alternative, the application does not appear to have measured or modeled acoustical impacts for alternate project configurations or locations. The Final EIR should examine whether other configurations would result in different or reduced impacts. The Final EIR should also analyze acoustic refraction where "sound is channeled into a moderately thick layer of air above the water, and levels can be 10 –20 decibels (dB) higher downwind than otherwise would be expected."

The Final EIR should also include additional information of the effects of noise in the marine environment, including the following:

1. reference to studies regarding underwater noise at overseas installations such as recent European studies that seem to indicate a greater intensity of underwater sound from pile driving and cable setting than that described in the Draft EIR;
2. a discussion of behavioral responses of different species to different types and intensities of underwater noise should be provided;
3. a nighttime baseline for ambient noise levels, which should be collected and used as a benchmark for measuring incremental increases and total ambient noise levels during construction and operation.

Land Alteration

The scope of the EIR required that the proponent quantify the amount of land disturbed, both land under water/salt marsh and uplands/inland wetlands. The landforms of Nantucket, Martha's Vineyard, and the south side of Cape Cod are the product of natural distribution of sediment within Nantucket Sound. Horseshoe Shoals is shallow and dynamic, and contains a significant volume of sand; an alteration to the project area may have a significant impact to the

sediment transport system in Nantucket Sound. Tidal, and to a lesser extent wind-driven, currents move sand into and out of these areas daily; these processes are accelerated during storm events. Changes to this system may have widespread effects, potentially affecting benthic habitat and changing erosion and accretion patterns in the coastal zone.

The Coastal Hazard Policy #2, which guides CZM's review of projects that may affect sediment transport, requires an analysis of a project's potential to alter wave or tidally generated sediment transport at the project site or on adjacent downcoast areas. The policy states that "[o]f particular concern are significant adverse changes in depositional patterns and natural storm damage prevention or buffering functions." I concur with CZM's request that the proponent develop and undertake an oceanographic modeling study to develop a better understanding of sediment transport pathways for all of the options in the alternatives analysis, as well as for Nantucket Sound in general and any potential impacts of the proposed project to those sediment transport pathways.

The Draft EIR estimate of scour effects around individual monopiles and over buried electrical cables understated the potential effects. The monopiles and scour protection will add a substantial area of new artificial habitat to Nantucket Sound. The Final EIR should evaluate the scour mats proposed for installation because the Draft EIR does not provide data on the performance of these mats at Cape Wind's test tower. This data could be helpful in determining if these structures are effective and whether there are adverse impacts associated with them.

The project area's dynamic sedimentary environment with wind-driven and tidal currents is also likely to cause scour below the proposed burial depth of the cables. Exposed cables pose a significant hazard to fishing and navigation. The proponent should develop a large-scale oceanographic model to characterize Nantucket Sound sediment transport and likely scour. The model would help to accurately characterize the likely scour so that the cable burial depth can be determined properly.

After consultation with CZM, I am not convinced that the proposed scour protection is appropriate. The plastic filaments attached to the mats are non-biodegradable and, even with a maintenance plan in place to assure the integrity of each mat unit, will eventually dislodge and disperse within the marine environment. The proposed mats will contain a total of approximately 588 million four-foot long plastic filaments. A rate of loss of only 1% represents 5.8 million pieces of marine debris in Nantucket Sound. The Final EIR should evaluate the need for the scour control at the base of the monopiles using the oceanographic modeling described above. Since the monopiles are proposed to be driven to a depth of 80 feet, it is unclear that they will become unstable if the amount of erosion is only 6-8 feet. If modeling and/or engineering calculations determine that scour protection is necessary, I recommend the use of riprap or similar materials, recognizing that this will require the proponent to recalculate habitat impacts.

Wetlands/Drainage

The Draft EIR included a reasonably scaled map that delineated wetland boundaries and buffer zones present in the project area. However, the Draft EIR does not discuss plans to comply with stormwater management requirements of the Cape Cod Commission's Regional Policy Plan. Potential impacts consist of encroachment into several 100-foot wetland buffers during the cable installation. The Final EIR should contain information on how stormwater will be managed along the cable route during and after construction and how the project will comply with the Regional Policy Plan. Information detailing plans on how direct and infiltrate runoff will be kept outside of the Yarmouth Water Supply Wells must also be included. The Final EIR should explain in more detail the significance of each wetland area to the interests enumerated in the Wetlands Protection Act.

Water Quality

The Final EIR should address the water quality impacts of the project, including impacts from the proposed jet plow method of embedding the submarine cables. The Final EIR should also discuss impacts at the landfall site, and maximize the use of horizontal directional drilling in this area to minimize impacts.

The Draft EIR describes the components of two discrete cable systems comprised of 115 kV dielectric AC cables bundled together with a companion fiber optic cable. The proposed installation method for these cables is jet plow embedment. The Draft EIR describes the transition of the seabed cables to upland at New Hampshire Avenue in Yarmouth. The proposal calls for the emplacement of four 18-inch High Density Polyethylene (HDPE) pipes to house the cables that will attach to an upland electrical vault at the end of New Hampshire Avenue. The proponent proposes to use Horizontal Direct Drilling (HDD) technology, including the temporary construction of a cofferdam, to effect this transition. The construction of the temporary cofferdam is estimated to require dredging of approximately 840 cubic yards of sediments, which is described in the Draft EIR to be disposed of at a permitted upland location. A 401 Water Quality Certificate submission will be required for monitoring HDD operations to prevent incidents of inadvertent returns of the drilling media due to fractures and an emergency operational plan to address containment and minimization of the effects of such an incident during drilling. The Final EIR should also address the manner in which the proponent intends to avoid impacts to nearshore navigation during the construction process. The proponent should consider backfilling the area that is excavated at the transition point between the submarine cable and the HDD cable, so as to nearly replicate the sediment transport attributes of the benthic area prior to dredging. The key elements of the dredge plan and related mitigation measures should be described in the Final EIR.

The Draft EIR does not provide specific information regarding the potential impacts to water quality and marine resources in the event of a discharge of any of the 40,000 gallons of dielectric fluid that will be contained in the transformers on the ESP. The Draft EIR does not

include federally required pollution prevention/remediation plans, including an Oil Spill Response Plan, Spill Prevention Control and Countermeasure Plan, Stormwater Pollution Prevention Plan, and an Operations and Maintenance Plan. If such a spill were to occur, it would significantly damage the marine environment of Nantucket Sound, including state resources within the Massachusetts Coastal Zone. This information should be submitted in the Final EIR. At a minimum, the Final EIR should provide an update on the status of these plans, information pertaining to the specific type of oil proposed to be utilized by the project, and an analysis of the potential environmental impacts in the hypothetical event of a release.

Decommissioning Plan

The Final EIR should include a more thorough plan to remove the turbines, towers, cables, and other infrastructure in the event that the project ceases operation. The Final EIR should include additional detail on how the decision to decommission would be made and who would make the decisions concerning it. The Final EIR should address the length of time and potential construction period impacts if implementation of the decommissioning plan were required. In addition, the description regarding the financial instrument for bonding decommissioning should be expanded by including a review of the current market for bonding of wind power projects and the bond market's willingness to underwrite this emerging industry.

Construction Period

The Final EIR should include a further analysis of construction period impacts including further discussion on the proposed use of hazardous materials described in the Draft EIR.

Comprehensive Environmental Monitoring Program

I recommend that proponent, in consultation with the ACOE and resource agencies, form a technical advisory group to develop the necessary comprehensive environmental monitoring program for this project to assure that large scale adverse changes are not occurring. The components of this monitoring plan should address recovery of impacted habitats and the changes in use of the project site by threatened and endangered species.

Comments and Circulation

The Final EIR should include a copy of each comment received. The Final EIR need not reproduce every form letter, but should include one "template" from each form letter category. The Final EIR should respond to the substantive comments received, including the substantive issues raised in the form letters. The proponent should circulate a hard copy of the Final EIR to each state agency from which the proponent will seek permits or approvals. The proponent should also circulate a copy of the Final EIR to those submitting individual written comments.

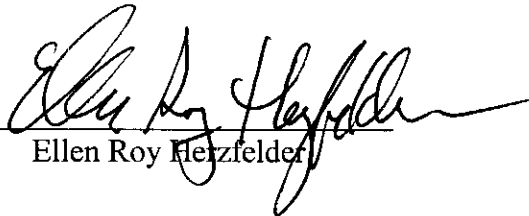
To save paper and other resources, I will allow the proponent to circulate the EIR in CD-ROM format to individual commenters, although the proponent should make available a reasonable number of hard copies available on a first come, first served basis, to accommodate those without convenient access to a computer. In the interest of broad public dissemination of information, the proponent should send a notice of availability of the EIR (including relevant comment deadlines, locations where hard copies may be reviewed and electronic copies obtained, and appropriate addresses) to those who submitted form letters, if (e-mail) addresses are available. This notification may take the form of electronic notification, as most form letters were submitted via e-mail.

Mitigation

The Final EIR should include a summary of all mitigation measures to which the proponent has committed, and should include Proposed Section 61 Findings for use by the state permitting agencies.

March 3, 2005

Date


Ellen Roy Herzfelder

ERH/ACC/acc

See Appendix 1 for list of MEPA comments received on the Cape Wind Draft EIR.